# THE VETERINARY RECORD

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### The Wragg Memorial Fund.

Last week we published the first list of subscribers to this Fund, with a joint letter from Messrs. Simpson and Villar, to which we especially direct the attention of members. The final decision as to the form the memorial shall take cannot, of course, be made until the amount of money at the disposal of the Committee is known; and it is therefore very necessary that all who desire to assist in perpetuating the memory of our late friend should communicate with either Mr. Simpson or Mr. Villar at once. Anyone who joins the Committee will, of course, have a voice in determining the nature of the memorial, but no time should be lost in forwarding names and subscriptions.

It is not necessary to dwell upon the invaluable services which Mr. Wragg rendered to the Council and the profession for so many years—those are common knowledge. It is sufficient to remind members that all contributions towards his memorial should be sent without delay.

### The Research Defence Society.

It will be remembered that this Society came into existence between nine and ten months ago, its avowed object being "to make known the facts as to experiments on animals in this country; the immense importance to the welfare of mankind of such experiments; and the great saving of human life and health directly attributable to them."

Such a Society was greatly needed, and this one was founded under auspices which augured well for its success. The long list of vice-presidents, which included men prominent in almost every department of the intellectual life of the nation, probably surprised even the supporters of experimental research, and must have disquieted its opponents. With Lord Cromer as President, and Mr. Stephen Paget as Honorary Secretary, immediate success seemed assured. Certainly it has been successful in some degree, but not to the extent which seemed likely.

At the end of last month it numbered 1540 members, and is still steadily increasing; but over 800 members were enrolled before the end of April, it is obvious, therefore, that the increase is by no means rapid. It seems reasonable to infer that the great majority of those able to form a judgment upon the question of experiments upon animals regard the anti-vivisectionist party with indifference, and do not recognise the necessity for any organised opposition to its mischievous agitation. Medical men know the advantages of experimental research perfectly well, but the number of members of the Research Defence Society proves clearly that it is not receiving very active support from the medical profession. This is to be regretted, for the Society may be even more necessary a few months hence than at present.

It is now about eight months since the Royal Commission on vivisection concluded the taking of evidence, and their report may soon be issued. Judging from the bulk of the evidence which was submitted to them, it is hardly likely that that report will satisfy the anti-vivisectionists. If it does not, we may expect a fresh outburst of hysterical agitation, and, if the Commission should recommend any extension of the facilities for research, the agitators might succeed in deterring the Government from acting upon that recommendation. Here the Research Defence Society, if strong and well organised, might do invaluable service, but with its present membership roll, it is at a disadvantage.

Membership of the Society is open to all, and the subscription is very small. All who care for the advancement of medical science in this country would do well to become members, and add to the numerical strength of the Society at least. The Society is doing good work at present, and would do better if more actively supported—and some of its supporters should be veterinary surgeons.

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### Notes on the Diagnosis of "Sturdy," Cerebral Tuberculosis, etc., in Young Cattle.

Professor Law, in his work on "Veterinary Medicine," states that "tubercle of the encephalon has been little noticed in the lower animals, partly because it is especially a disease of early life."

"Sturdy," too, is a disease of early life. Having seen and made post-mortems on some cases of tuberculosis of the brain in young cattle (two yearlings and one two-year-old), and having operated on several cases of "sturdy" in cattle successfully, I have noticed that the symptoms of the two diseases are very similar and require close observation to distinguish the one from the other.

The disease commonly called "trembling" in young cattle, too, shows some symptoms similar to those of tuberculosis of the brain in the young, but there is more similarity between "sturdy" and cerebral tuberculosis.

I may mention here that I described the symptoms of "trembling" in young cattle in *The Veterinary Record* two or three years ago. The symptoms are identical with those of the same disease

in lambs. The particular case which I described recovered and was fed for the butcher. At that time a writer in *The Veterinary Record* remarked that I would most probably find that the case was one of cerebral tuberculosis at the post-mortem. However, when the heifer was killed the carcase was free from tuberculosis. Since that time several cases of "trembling" in young cattle have come under my notice and they have all appeared on hill farms where "trembling" is common amongst the lambs. I have not seen a case in cattle on land where there is no "trembling" among the sheep.

Tuberculosis of the brain is secondary to pulmonary or intestinal infection, and affected animals usually become gradually emaciated; but cases of "trembling" in cattle usually either die quickly or recover quickly.

The symptoms of "sturdy" in cattle are at first dulness, timidity, listless feeding, and imperfect rumination. The animal, if at grass, keeps away from the rest of the cattle, staggers when driven (but does not go round in a circle at first) and is partially blind in both eyes, the pupils being dilated and the eyelids half closed. After a varying length of time the primary symptoms seem to subside, after which the symptoms vary according to the position of the hydatid. If it is in the usual position—on one hemisphere of the cerebrum, the animal turns to the same side, moving in a circle, and making a bare circular path. Blindness is usual in the eye on the opposite side to which the animal turns; but both eyes may become affected. The head is held to the side to which it turns. The animal now eats fitfully and very little, and seldom ruminates. It is seen either standing still with the head depressed to the one side, or moving in a circle. It may occasionally press the head against any convenient object. The limbs on the opposite side to which the animal turns are moved stiffly and awkwardly, and it may stagger and fall occasionally, showing some difficulty in rising again. If the forehead over the cerebral hemispheres is tapped with the knuckles, a duller sound can often be heard on that side to which the animal turns. The temperature and pulse are usually normal. I have not seen any cases in cattle where I could diagnose the presence of a hydatid in any other part of the brain except over the hemispheres, but such cases are not uncommon amongst sheep. The part of the cranium immediately over the hydatid does not soften in cattle, as in sheep, owing to its thickness; but after the hair is clipped off the forehead a slight elevation at one point can sometimes be noticed, and on more than one occasion I have operated successfully by trephining at that point. Emaciation is rapid, but after the hydatid is removed recovery usually occurs.

Tuberculosis of the brain in young cattle is characterised by symptoms of timidity, impaired vision, staggering, rotatory movements, the limbs being moved stiffly and awkwardly, emaciation, etc. In cerebral tuberculosis the timidity on being handled is more pronounced than in "sturdy." Blindness affects both eyes usually, if at all, but it is not total as in one eye in "sturdy." There is more staggering and falling in brain tuberculosis, as a rule, but rotatory movements are not so pronounced as in "sturdy." In my cases of tuberculosis the animals would move in a large circle in either direction. In "sturdy" the circle is much smaller and the animal becomes more persistent in moving in a circle. In "sturdy" the head is usually depressed to one side, but the head may be held to one side in brain tuberculosis. If the eyes are examined lesions of tuberculosis may be noticed in them when the brain is affected. Of course the cases of cerebral tuberculosis to which I refer were acute. In both diseases the head may be pressed against any convenient object.

In the post-mortems on the cases from which I observed the above symptoms, the disease was seen to be of the acute miliary type, and in one case there were large tubercular deposits on the pericardium; the heifer was just about a year old.

J. W. Pollock, M.R.C.V.S.

## ABSTRACTS FROM FOREIGN JOURNALS.

### Costal Lesions of Glanders in a Horse.

Conte, in the *Revue Générale*, records a case of a six year old horse, which for some time had worked with another affected with nasal and pulmonary glanders. A month after the slaughter of the latter, this in-contact animal, although showing no symptoms of glanders, received an injection of mallein, which provoked a slight constitutional reaction, a local reaction of moderate intensity, and a violent thermic reaction—the temperature rising from 100·7 F. to 106·1 F. A minute examination revealed the existence of a painless, ill-defined, and vaguely fluctuating tumour of the size of two fists, on the right side of the chest, a little below the spur vein. Puncture of this gave exit to half a litre (about 7/8th of a pint) of clotted pus. This abscess had developed at the time when the horse was still working with the glandered one; and there was a previous history of two other abscesses, which had been slow in evolution, on the left side. The author inoculated a dog, upon the skin over the cranium, with the pus collected from the present abscess. The result was negative.

Two months later the horse received a second injection of mallein. The temperature reaction was doubtful, and the constitutional reaction almost *nil*; whilst the local œdema was only slightly apparent and scarcely sensitive. The abscess was now cured.

A third injection of mallein, administered at the end of two more months, gave a temperature reaction of about 2° F. Constitutional reaction was absent, but a large, sensitive engorgement, from which lymphatic trains proceeded, appeared at the point of inoculation. The animal was in good condition, but another abscess had now appeared on the left side, in the region traversed by the girth. A dog was inoculated with pus from this, but with-

out result. Two male guinea-pigs, at the same time, received a cubic centimetre of the pus, diluted with boiled water, and injected subcutaneously upon the inner aspect of the left thigh. The guinea-pigs died respectively on the sixteenth and the twenty-seventh day after inoculation, presenting characteristic lesions of glanders; pus from these guinea-pigs, sown upon potatoes, gave the ordinary chocolate-coloured culture of the *Bacillus mallei*. The horse was then killed as glandered.

*Post-mortem.*—The skin, the subcutaneous connective tissue, the superficial lymphatic glands, the nasal, laryngeal, tracheal, and bronchial mucous membranes, the liver, the spleen, and the kidneys were all found free from disease. The pleura presented lesions of dry pleurisy in the form of firm, reddish, pedunculated vegetations, breaking away like stalactites from the costal pleura; these contained neither nodules nor pus. Upon careful examination of the lungs, three nodules, the size of which varied from that of a pea to that of a hazel-nut, were discovered; section of these showed a greyish homogeneous tissue of sarcomatous appearance, without caseation or calcification. The bronchial glands, a little hypertrophied, contained no nodules.

Important lesions existed upon the seventh and twelfth left ribs, and the ninth and fifteenth right ribs. The seventh left rib, which was especially affected, was widened, and showed upon its internal aspect, between its inferior third and the costo-sternal articulation, a hard tumefaction, which was smooth to the touch, mammilated on its surface, and attained the size of a fist. The anterior and posterior edges of the rib were thickened and rounded; the external aspect preserved its normal convexity. Similar growths existed upon the other diseased ribs. Upon section it was found that these enlargements were hollowed by a sinuous cavity, the walls of which were formed by attenuated spongy bone, strewn with centres of softening, and lined by a pseudo-mucous membrane of a rosy colour. The contents consisted of an oily, oozing liquid, yellow in colour, and containing the bacilli of glanders rather abundantly.

After advancing some opinions concerning the duration of the lesions in this rare case of osseous glanders, the author expresses the opinion that the observation confirms the view that mallein is the best diagnostic agent from a practical standpoint.—*Annales de Méd. Vét.*

### Prolapse of the Uterus.

Damécourt, discussing this subject in *La Revue Générale*, asserts that, in order to avoid expulsive efforts on the part of the patient, it is advisable to refrain altogether from washing the uterus before reducing it. He has found that hæmorrhage is almost absent and the expulsive efforts are reduced to the minimum when the prolapsed organ is not washed.

As soon as reduction is completed, he thoroughly washes out the womb with a hot solution of eight per cent. common salt in water, using from nine to eleven gallons. By means of his hand inside the uterus, he stirs the liquid in order to facilitate the suspension and removal of all foreign bodies. The washing out is continued until the fluid returns from the uterus clear, a truss being then applied.—*Annales de Méd. Vét.*

W. R. C.

(This is a novel procedure, and many English practitioners will doubt the possibility of satisfactorily cleansing the uterus in such a manner. Some may be induced to try it on account of the advantage of reducing straining, which is claimed for it.—Transl.)

## CENTRAL VETERINARY MEDICAL SOCIETY.

### Annual Dinner.

An ordinary general meeting was held at the Holborn Restaurant on Thursday, Nov. 5th, Prof. F. Hobday, President, occupying the chair. The following Fellows and visitors signed the attendance book: Messrs. E. Lionel Stroud, H. G. Simpson, R. Porch, R. J. Foreman, A. E. Bayley, J. Willett, Prof. G. H. Wooldridge, W. R. Davis, Arthur L. Wilson, James Rowe, Ainsworth Wilson, Geo. J. Bell, S. H. Nye, Wm. Roots, W. S. Mulvey, W. D. Wallis, J. T. Angwin, Guy Sutton, Sir John M'Fadyean, C. Herbert Sheather, E. M. Perry, N. Almond, A. E. Gostling, R. Eaglesham, Maj.-Gen. F. Smith, R. F. Wall, G. Dunlop Martin, F. W. Chamberlain, W. Perryman, Capt. C. H. H. Joliffe, and Hugh A. MacCormack, Hon. Sec.; and as visitors Messrs. Chas. Hartley, T. A. Saunders, W. A. Dellagana, A. Atkin, Capt. A. Olver, B. A. McGuire, and C. C. Abram.

On the proposition of Mr. E. Lionel Stroud, seconded by Mr. H. G. Simpson, the minutes of the July meeting were taken as read.

Letters were announced from the Trustees accepting office.

Telegrams of regret at inability to be present were received from Messrs. C. Roberts, J. B. Tutt, S. Villar, A. L. Butters, S. H. Slocock, W. L. Harrison, and J. C. Coleman.

A letter was received from Mr. J. F. Simpson resigning his Fellowship, and it was referred to the Council.

Capt. Olver, A.V.C., War office, and Mr. C. Nicholson were nominated for membership and will come up for election at the next meeting.

The President, Prof. Fred. Hobday, then gave an Address. (This appeared last week, p. 310).

A hearty vote of thanks to the President for his very able address was carried with acclamation, and the meeting terminated.

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Immediately at the close of the meeting, the 39th annual dinner of the Society was held in the Gordon Room of the Holborn Restaurant, the President, Prof. F. Hobday, occupying the chair, and seventy-two Fellows and friends sat down to dinner.

At the close of the dinner the loyal toasts were duly honoured.

Mr. W. R. Davis, who proposed the toast of "The Imperial Forces," was proud to be able to call himself a compatriot of the many members of the Forces who had shown us splendid examples of devotion to duty, of self-sacrifice, and of unfailing resolution. He was confident that those who to-day inherit the traditions that belong to the Imperial Forces would worthily uphold them. Referring to the Army Veterinary Department he extolled the excellent work it had done in the past

and prophesied even better work in the future. The Department was now, he considered, on a much better footing, and for that result a great deal was due to the efforts of the civilian veterinary surgeon. He coupled with the toast the name of Major-General F. Smith, to whom as man of science and writer, as examiner, as teacher, and as practitioner, the profession owed much.

The toast was honoured, with cheers.

Maj.-Gen. F. SMITH, C.B., C.M.G., in responding, said the function of the Navy and the Army was not the same to-day as in the past. For two centuries and a half those forces had been employed in bringing the Empire together; to-day they were engaged in taking care of it. He referred to the genius of Oliver Cromwell, who recognised the fact that England was to be a manufacturing country, and his foresight in acquiring those countries where raw materials could be obtained, with rights over those markets where the manufactured article could be sold, and especially praised his axiom that England should keep the command of the sea for the safety of her commerce.

Great Britain had been content to build her Empire slowly, she had been two hundred and fifty years in putting it together. Other European countries had not been so deliberate, France, for instance, attempted to build an Empire in a few years, under the guidance of one of the greatest geniuses that ever lived, Napoleon Bonaparte, but the Empire which he created collapsed in as many months as it had taken years to put together. To the question whether the British Empire would stand for ever, the reply of history was that it would not. Assyria, Egypt, Greece, and Rome had all disappeared, leaving nothing but fragments of literature, stones, and bricks, and a degenerate race.

The causes bringing about the disintegration of an Empire were two, pressure from without and disintegration from within. Pressure from without was due to jealousy—a universal human weakness, even found in the lower animals. The immense wealth of this country had created a bitter jealousy in Europe, and probably to-day the British nation was the best hated nation in the world. We had employed against other countries the process which was being employed against us to-day. It was our jealousy of Spain which caused us to interfere with her wealth; it was our jealousy of Holland as the commercial carrying power of the world which caused us to destroy her fleet; it was our jealousy of France which gave us the Empire of India, gave us control over Egypt, and gave us the whole of North America until we lost half of it through bad administration.

With regard to disintegration from within, one might liken an Empire to a business which a careful man had built up during his lifetime by extraordinary ability, leaving it to his son, who had been brought up in idleness and luxury, to spend the wealth which the father had accumulated. The life of the son was one round of pleasure, his education the thinnest possible veneer, and his literature the *Sportsman*. He had probably heard of the Empire, but did not know its position on the map. No nation or individual could afford to live upon its history, and the strong man never undervalued his enemy.

There had been physical as well as moral deterioration, due largely to the decay of agriculture forcing the people from the country into the towns, and so great had the physical deterioration become, that nearly 40 per cent. of the supposed able bodied young men of the nation were rejected on medical grounds when they presented themselves for the Army. In other words, there was a teeming male population of somewhat low physical standard.

The hope of regeneration lay with the women of the nation, whose physical improvement is astonishing, while their intellectual powers, enthusiasm, and desire for advancement are beyond all praise. It is the mother who moulds the child, and the child is father of the man. The child should learn parriotism and self-sacrifice where it learns its prayers. The good which women can do lies in spurring men on to a higher ideal of national duty; no man can withstand her scorn, and thousands have died for her smile. It was the women and not Peter the Hermit who sent the men to the Crusades: it was the women who decided the honours in the days of chivalry, who settled the fate of the gladiator, and who determine the favourite in the bull-ring of to-day; it was the women who destroyed Cromwell's conquest of Ireland. Her influence for good or for evil is immense, and she is never defeated. Mr. Haldane could double the numbers he requires for the Territorial Force if the women so will it.

The great moral lesson we have to learn is that nations like individuals have to struggle for existence, and resist the gradual but increasing pressure of younger and therefore more virile neighbours. The Empire must be our first and our last consideration. The whole of our national training should be based on increasing its stability, strengthening its weak places, and contributing to a sound national insurance through the possession of an effective Navy and Army.

Dr. F. E. BATTEN proposed "The Central Veterinary Medical Society." He said the Society had performed a great work and was of great value in stimulating investigation and disseminating knowledge. Diseases in animals bore a very close relationship with the diseases occurring in man; in such diseases as tubercle, plague, anthrax, glanders, and Malta fever, the animal was the direct carrier of the disease. There was a large untrodden field for investigation, and the investigation that had interested him most, and one which Professor Hobday had given him some opportunity of studying, was nervous diseases occurring in animals. As rheumatic fever in man was frequently followed by chorea, so distemper in animals was frequently followed by nervous sequelæ. The relationship of such diseases was but little understood either in man or animals. In the more highly organised nervous system of man there were diseases which did not apparently affect animals; hysterical manifestations were, he believed, rather uncommon, if not almost unknown in animals, but he had come across an account of an interesting case of hysterical paralysis in a cat. The cat was said to have been attacked by a dog and was paralysed in the hind legs. A servant giri, who had been told that a cat always fell on its legs, dropped the animal out of a window, and the cat at once got up and ran away. He offered no comment on the case, but it seemed one of some interest. (Laughter.) He hoped the Society might long flourish to stimulate investigation, and to disseminate knowledge, and he coupled with the toast the name of the active and energetic President, Professor Hobday, who had done so much to forward the interests of the profession and the Society.

The toast was drunk with enthusiasm.

The PRESIDENT, in responding on behalf of the officers and members of the Society, said it was always interesting and somewhat of a consolation to hear from the lips of a medical man that there were diseases in man which baffled them as well as diseases in animals which baffled the veterinary surgeon. If a disease baffled the brain of the best doctor who studied it, it baffled the best brain in the world, for no one could be said to have better brains than the man who gave his heart and soul to the study of disease. It was a most disheartening thing to study a disease which led one over ground that had been trodden many times and in the end led nowhere. An enthusiastic man, of course, started at once on another trail, also frequently leading to no result.

The Central Veterinary Medical Society as compared

with some Societies was practically a new comer ; it was started in 1870 by a few well wishers of the profession, and it had grown until at the present time it numbered some hundred and forty members. The Society gave place to no Society in enthusiasm and in the desire to forward the object with which it was originally formed, namely, the study of problems concerned with the diseases of animals. It was the wish of the members that the Society should prosper and that it should always be in the van of progress. (Hear, hear.) When veterinary science was under consideration the members might be relied upon to do their best for that science, with which they were so closely connected. (Cheers.)

"The Royal College of Veterinary Surgeons." Mr. D'Arcy Power, in proposing this toast, did not think it required very many words on his part. The College was known to all under different aspects, the first recollection of it probably being a dull, raw day in December, with uncomfortable feelings about the individual's inside, a closed door, a sudden opening of that door and an appearance before "three great beasts" sitting with bottles all round them. (Laughter.) Most of those present had come through that ordeal to his satisfaction when he was their teacher, and their own satisfaction, manifested in various ways. (Laughter) As they grew older the scene changed. Some went through those closed doors and themselves became one of the "great beasts," occupying the time in extracting fragments of knowledge from those who appeared before them. Then came a later period when the College was seen as a corporate body, the envy and the despair of all foreigners. (Hear, hear.) He was constantly asked by foreigners how affairs were managed in our professions in England, and where the State came in. He always replied that it was obvious that the work was done better by decentralisation and without State help. He was sure they all owed a very great debt of gratitude to their respective Colleges and the individuals who constituted the corporate bodies for the amount of time they devoted to the work of the profession. (Hear, hear.) Although there appeared to be a great deal of talk and very little action, yet if one looked back ten or fifteen years one could see how very great the advances had been, and how much advance was being made. Things moved slowly at the time, but in the end it was seen the movement was entirely towards progress. Therefore he thought they could not do better than drink the health of the Royal College of Veterinary Surgeons, coupling with it the name of Sir John M'Fadyean, the President. (Cheers.)

The toast was enthusiastically honoured.

Sir John M'Fadyean was very glad as President to be called upon to respond to the toast. If anything could have added to the pleasure natural to the occasion it would be the circumstance that an old colleague of his own happened to be in the Chair, and that the toast was proposed by another old colleague. (Hear, hear.) Although he did not like to lay himself open to the charge of poaching on a subject more proper to a toast that was to come later on, he might be permitted to say that he had another peculiar satisfaction in sitting near to Mr. D'Arcy Power, because throughout the evening he had been able to break some of the laws of health in full confidence that if anything went wrong with any organ not absolutely vital, Mr. D'Arcy Power could cut it out without any discomfort in the interval between the speeches—(laughter)—while if any other operative action was required Mr. Bland Sutton was equally available. (Laughter and Cheers.) He was quite sure that the toast of "The Royal College of Veterinary Surgeons" could have been committed to nobody more competent to deal with it than Mr. D'Arcy Power, because he was perfectly familiar not only with the College but with the schools affiliated to it and with the work of the profession.

He was a little disappointed in one respect with Mr. Power's speech. He expected that he would have extended to him as President a certain measure of sympathy, but he was afraid Mr. Power was a little out of touch with the internal affairs of the College and did not know that he happened to be President at a time when it was threatened with an internal convulsion. He referred to the little Bill which the College was intending to introduce. The reason why he thought a certain measure of sympathy ought to be extended to him would be plain if he told Mr. D'Arcy Power the two opposing views that had been put forward with regard to that Bill. One was that it was an honest, straightforward attempt on the part of the Council to place the Royal College of Veterinary Surgeons on a sound financial basis and enable it to do the work which was naturally expected of it in a way that would otherwise not be possible. (Hear, hear.) The other view might be stated something like this, that the Bill was the outcome of a conspiracy on the part of a number of starving teachers, mercenary examiners, and unprincipled members of Council to secure from an already impoverished profession as much plunder as possible for division amongst themselves. (Laughter.) Mr. D'Arcy Power would hardly believe it possible that the profession had lately been asked to say whether they approved of the Bill or not on the assumption that it accorded with the last description. (Laughter.)

He was quite sure that all present had shared his own feelings of gratification in hearing so eminent a member of the surgical profession speaking appreciatively of the veterinary surgeons' work. As he was anxious to obey the hint of the Chairman that speakers were not to be long, he would merely say that now and always the aim of the Royal College of Veterinary Surgeons would be so to fit its members that they should discharge their duties not merely to their own advantage but to the public interest. (Cheers.)

Mr. William Hunting, in proposing the toast of "The Medical Profession," said the difficulties in connection with the toast were very much lightened by the fact that he was a veterinary surgeon addressing a veterinary audience with a fair proportion of medical men—medical men of the best kind—those who knew the veterinary profession best. (Hear, hear.) Any man could propose or reply to the toast of "The Medical Profession" because no man had been yet found to confess to ingratitude, and any man possessing a little gratitude, at any rate if he was over forty, must speak well of the medical profession. (Hear, hear.) But veterinary surgeons were grateful in another direction, remembering that when their profession started the greatest amount of help was given by medical men. (Hear, hear.) In the early history of the veterinary profession there were only two teachers at the Veterinary College, but three or four of the leading medical men at once offered to teach the students gratuitously, and amongst them was John Hunter. (Hear, hear.) Since that time the connection between the two professions had never been severed. Medical men, if they had not been teachers had been examiners, and had assisted the profession in every possible way. Veterinary science for years and years had to take all its scientific knowledge from the medical profession ; in those days it was all "take" on the part of veterinary medicine, but it was now "give and take." (Hear, hear.) Veterinary surgeons were now able to contribute to the general store of science from which all pathologists, both medical and veterinary, drew their information. The veterinary profession believed that they filled a little sphere of their own which did not conflict with that of human medicine, a little sphere in which they could do their own work without assistance. They sometimes wondered why medical men accepted or were offered such positions as that of Medical Officer of

Health controlling the Diseases of Animals Act, and why a medical man should have the confidence to accept the position, as at Salford, of inspector of imported stock. Again, why in various Acts of Parliament medical men should desire to be the supreme authorities in the examination not only of dead but of living animals. Every medical man present knew very well that the veterinary profession were able to fufil those duties. (Hear, hear.) The discovery of the tubercle bacillus by Koch was about the biggest bit of work that had been done on tuberculosis. Another piece of work that had been almost ignored was the proof by Bang that that disease was not hereditary. In every insurance policy he had seen—and no doubt the insurance men were acting under the advice of the medical profession—the first three or four questions were, "What did your grandmother die of? Have you lost any sisters from tuberculosis?" all pointing to the absolutely disproved theory of the inheritance of disease, thereby distracting attention from the real cause—contagion. At a meeting six years ago in Manchester he ventured to make similar observations, and the Chairman took the trouble to get up at the end and say that he could not allow the remarks to pass because every medical man knew that there was an hereditary tendency. Yet, two years ago the same man was very strong in denying any hereditary tendency—but he never mentioned Bang! He read *The British Medical Journal* and *The Lancet* every week and could not remember having seen Bang's name mentioned twice. It was very pleasant to have one's work recognised. To a scientific man, of course, it was delightful to do his work whether it was recognised or not, but the general practitioner generally liked to see some recognition of what his profession was doing. Without the knowledge that all the medical profession present that evening were friends, he would not have dared to make those observations, and while he made them he stood second to none in his admiration of the medical profession. (Hear, hear.) He had been asked to couple with the toast the names of Mr. Bland Sutton and Dr. Mills. Dr. Mills was a friend of the President, who looked upon him as one of the most skilful practitioners of the time. (Hear, hear.) Mr. Bland Sutton had been connected so closely with the veterinary profession that no words of introduction were needed; he was one of the leading pathologists of the day and one of the most skilful operators. (Hear, hear.) Both gentlemen were eminently representative of the medical profession, and he asked those present to drink the toast coupled with their names.

The toast was very heartily received.

Mr. J. BLAND SUTTON was sure the medical profession felt extremely thankful to Mr. Hunting for the felicitous terms in which he had proposed the toast, and he was very grateful to those who arranged the toast list for giving him an opportunity of replying. A few weeks ago he had read an account of a speech by a Cabinet Minister, in which he was rash enough to say that he thought the veterinary profession would be better if it knew a little more of human medicine, and that the medical profession would be improved with a little more knowledge of the veterinary art. He ventured to say that that Cabinet Minister did not appreciate the cordial good feeling and mutual understanding which existed between those two callings. (Hear, hear.) He knew from his own observation that if anything was introduced which would relieve a cat or a dog in the performance of a painful operation the veterinary profession was only too willing to adopt it; and when to the medical profession knowledge came from the veterinary profession on the subject of those terrible diseases of domesticated animals which not only destroyed flocks and herds but might destroy all the domesticated animals over a large tract of country, they welcomed new knowledge to combat that disease in the warmest possible manner. (Hear, hear.) There was no more striking example of the value of studying the diseases of animals than the study of sleeping sickness, and amongst all the splendid results of that kind of work—and he thought Mr. Hunting would excuse him when he said that they far outdid the deeds of Koch—was the discovery of those extraordinary and peculiar phases of the pathogenic parasites which lodged in ticks, and were so closely connected with horse fever. Rabies was fortunately now stamped out of the country, and that condition of affairs had been brought about by the cordial co-operation of the veterinary and medical advisers of a strong, determined Minister of Agriculture, Mr. Walter Long. (Cheers.) The knowledge arrived at regarding sleeping sickness, Malta fever, and the cure of rabies had impressed both medical and veterinary practitioners with the importance of studying all kinds of diseases in the lower animals. (Hear, hear.) When it came to applying treatment of injuries and diseases to individuals, whether a man or a dog, then he thought it was better, as Mr. Hunting said, for every cobbler to stick to his last. (Hear, hear.) Doctors always made a mess of it, even when they tried to treat the diseases of their own horse—(laughter and hear, hear)—but they made an infinitely bigger muddle of it when they tried to treat themselves. (Laughter.) There was a story of a combination of doctors and veterinary surgeons who attempted to treat a rhinoceros. Some years ago the rhinoceros in the Zoo. manifested signs of intestinal obstruction, and a very eminent physician was asked to prescribe for it. He ordered ten drops of croton oil on a bun. (Laughter.) That was to be repeated if required, but the rhinoceros would not take another bun. (Laughter.) They therefore called in the aid of a veterinary surgeon and he prescribed an enema, and this was the prescription: "Of soapy water four gallons, of croton oil a drachm, of castor oil a pint; and to make the thing work better a bottle of whiskey." (Laughter.) The rhinoceros took it quite docile and the result was magical, the effect he could only describe as colossal. (Laughter.) Although that happened fifteen years ago that rhinoceros still flourished and enjoyed himself in the Zoological Gardens. That brought him to the question of fees. Veterinary surgeons thought that doctors were overpaid and that they themselves were underpaid. In the case of the rhinoceros the physician gave his advice gratis, but the veterinary surgeon received a guinea, so that he got the benefit of that deal. (Laughter.) He was quite sure that if that magnificent horse "Flying Fox" had required an operation for an intestinal obstruction, Professor Hobday, if he had brought the treatment to a successful issue, would have received a bigger fee than any physician in London would get for relieving an Archbishop of the gout—(laughter)—and he was quite certain that if Prof. Hobday could have succeeded in curing "Ormonde" of roaring he would have received a bigger fee than a doctor would have received for relieving all the Cabinet Ministers to-day of that acute and very troublesome disease, suffragitis. (Laughter.)

Dr. MILLS also responded, remarking that after Mr. Bland Sutton's brilliant speech there was very little for him to say. The President had an extremely long memory, and he regarded his having been placed on the toast list as somewhat in the nature of a revenge for treatment at the hands of Mr. D'Arcy Power and himself when some years ago the President was unwillingly kept on his back for some weeks after an operation. (Laughter.) Alluding to Mr. Hunting's remarks, he thought it was being more and more recognised by the medical profession what a magnificent work the veterinary profession was doing. When he first read Nocard's work on tuberculosis he was astonished at its wonderful conception of the problems of tuberculosis in animals and human beings. Nocard recognised the wonderfully

simple facts—known also to horticulturists—that neither animals nor plants could exist healthily unless they had sunshine, fresh air and plenty of room, and the successful adoption of those principles in the care of cattle deserved the fullest recognition on the part of the medical profession. (Hear, hear.) It was perfectly true that tuberculous human beings could not be treated in the same manner as infected tuberculous cattle, but the medical profession obtained a grasp of the problem by reading the veterinary surgeon's work, such as could not be obtained by clinical work alone. There was other work he might mention, such as Metchnikoff's experiments on apes in connection with certain infectious diseases; also the enquiries as to the causation of Malta fever, a disease which had practically been stamped out of the British Navy. The objects of the medical and the veterinary professions were the same. The similarity of disease in man and the lower animals was becoming more and more recognised, and he had not the slightest doubt that the future lay chiefly in experimental work by the veterinary profession. More information would be derived from practical experiments and observations of diseases amongst animals in the future than had been in the past, and the whole of humanity would undoubtedly benefit by the cordial co-operation of human and veterinary medicine. (Cheers.) He thanked the company for so heartily receiving the toast to the medical profession.

Prof. G. H. WOOLDRIDGE proposed the toast of "The Past President," and spoke of the excellent manner in which Mr. Willett had conducted the business of the Society during the past year. The session had been a most successful one, and that success had been due in no small degree to Mr. Willett's ability and tact as the presiding genius. (Cheers.)

The toast was drunk with acclamation.

Mr. J. WILLETT, in responding, said: by the flattering words used in proposing the toast, the company no doubt guessed that Prof. Wooldridge was either a native of the Emerald Isle or that he had sojourned there for some period. He (the speaker) had grave suspicions that he had had close acquantance with the Blarney Stone.

Mr. Willett expressed his thanks for the cordial support he had had during his year of office and for the loyalty shown by the Fellows to him while in the chair. He was grateful for having the opportunity of speaking that evening if only to assure Prof. Hobday that he would have the same loyal support. (Hear, hear.) There was, however, a power behind the chair, represented in the persons of Mr. MacCormack, the Hon. Secretary (Cheers), and Mr Lionel Stroud, the Hon. Treasurer. (Cheers). No better officers, harder workers, and more whole-hearted supporters of the President could be found. (Cheers.) He therefore took the toast as applying to them as well. (Hear, hear).

Prof. H. A. WOODRUFF in proposing the toast of "The Visitors," said there were representatives of science, literature, and art. He regretted the absence of any representative of the Navy and of the Church. He was gratified to see present the father of the President, and he was sure that Mr. Hobday was a proud man that night. (Hear, hear.) The Society was always pleased to see visitors at the dinner, and would be very pleased to see them at the ordinary meetings, to share ideas and discuss matters in which the professions of veterinary and human medicine were interested in common. (Hear, hear).

Dr. J. SIDNEY TURNER, in responding, said there was a great similarity between the veterinary profession and the medical profession, and many of the diseases with which they had to deal were also very similar. But it was not only the similarity of diseases but the dissimilarity that had been of great benefit to human medicine, particularly in the formation of anti-serums. As was well known, the horse was more or less immune to diphtheria, and produced anti-toxins, and by passing the disease through the horse, one of the most excellent remedies for diphtheria had been discovered. It was by the two professions working together that the progress of science in the future would be accelerated. As editor of a cyclopædia he had received very valuable contributions from the veterinary profession, especially from the President, whose articles were most excellent, although there was a monotomy about the treatment which generally ran: "The best thing you can do in the treatment of this disease is to send for a good veterinary surgeon." (Laughter and Hear, hear.) As Chairman of the Kennel Club he had been brought into very close contact with members of the veterinary profession and had to recognise the very great assistance they had afforded him. (Hear, hear.)

The singing of "Auld Lang Syne" brought the proceedings to a close.

During the evening an excellent programme of songs and recitations was rendered by Miss Cassie Crang, Miss Belle Thynne, and Messrs. James and Claude Horncastle, who were assisted by Mr. Arthur Helmore, who gave two or three of his humourous sketches.

HUGH A. MACCORMACK, *Hon. Sec.*

## THE PROGRESS OF CANCER RESEARCH.

The Imperial Cancer Research Fund has issued its Third Scientific Report, after a silence of three years' duration. The first was issued in 1904, the second a year later. Annual issues were then discarded, and the whole attention of the investigators of the fund directed towards the accumulation of new facts. Those who read the bulky volume of some five hundred pages which constitutes this third report will approve the self-denying ordinance which has enjoined so prolonged a silence upon the official workers in this great field. The lapse of time has enabled them to extend the evidence available in 1905 by observations upon no fewer than seventy propagable malignant new growths of the mouse. These include not only carcinomata and malignant adenomata, but sarcomata of all kinds.

In the Second Scientific Report the more likely theories advanced in explanation of cancer were reviewed and discarded in the light of experiment. It is in a way satisfactory, as instancing capacity to weigh evidence, that the investigators of the fund have not had occasion to revise their judgment upon these hypotheses. Dr. Bashford in his introduction to the current report devotes some pains to the further demolition of one or two theories which appear still to be exercising a baneful influence upon the outlook of cancer research. In particular he cites the theory vaguely held by a good many people that cancer is "congenital," and produced by the disordered development of embryonic cells. "The study of the incidence of cancer as determined by irritants in man," he says, "demonstrates absolutely that the generalisation of the idea of a congenital or embryonic origin is incorrect." This comforting reflection is borne out by two novel items of evidence from India. Cancer of the skin of the abdomen, which is almost unknown in Europe, is very common in Kashmir. It is, of course, incredible that this should indicate a peculiar distribution of the hypothetical embryonic tissue among the natives of Kashmir; on the other hand there is a perfectly acceptable explanation to be found in the local custom of carrying at the waist a small earthenware vessel enclosed in basket-work, and containing a charcoal fire. This little charcoal oven is called a Kangri, and the effect of the repeated burns and chronic

irritation resulting from the custom of thus carrying it is the "Kangri ulcer," which passes on occasion into the "Kangri cancer." The latter is a typical squamous-celled carcinoma, as may be seen from an excellent photograph supplied with the text. The second of the newer arguments against the "congenital" theory is the frequency with which the women of India suffer from cancer of the inside of the mouth, while in Europe cancer among females rarely manifests itself in this situation. The explanation lies in the custom common to Indian women of chewing a mixture of betel-nut, areca-nut, slaked lime, and tobacco, and of sleeping with the plug at precisely that spot in the cheek at which cancer commonly appears. As Dr. Bashford says, if the putative congenital germs of cancer are to be postulated to explain facts like these, then we must also assume them to be distributed uniformly about the body, and this makes the so-called explanation a very shadowy one indeed.

The possible influence of heredity in determining the appearance of cancer has long formed a subject for speculation, but the difficulty of carrying out investigations in the case of a long-lived species like man has precluded anything like definite information. It appears, however, that the subject is now in a fair way towards being settled by means of accurate experiments upon mice. The surgical removal of spontaneously-occurring mammary cancers in mice and subsequent breeding from the affected animals has supplied over a thousand mice of known cancerous parentage. By successively crossing other spontaneously-affected animals with the offspring of cancerous parents the cancerous heredity is intensified to a known extent. Up to the present time there is no evidence that the in-breeding of cancerous mice has enhanced the liability of the offspring to mammary carcinoma.

We have drawn attention to one or two of the points in the report likely to be of general interest, but to the specialist the whole of it will appeal. It is true that at present no far-reaching generalisation has been evolved to link together the rapidly accumulating mass of facts; but this, so far from causing disappointment, may well form matter for congratulation; for we have suffered much at the hands of false prophets in the matter of cancer, and the wise reticence of Dr. Bashford and his colleagues will, we have no doubt, simply serve to increase the general confidence in them. Although we are told that no practical outcome to the experimental investigation is yet in sight, there is one item of information which is certain to attract much attention. It is that the inoculation of normal skin will protect practically every mouse against a subsequent inoculation of squamous-celled carcinoma. Nevertheless, once inoculation has been successful and a carcinoma of the skin has resulted, subsequent inoculations of normal skin cease to be protective against secondary inoculations of the cancer. It appears, therefore, that the presence of an inoculated tumour produces some constitutional modification favourable to dissemination, and that in the circumstances determining this modification may lie some clue to the prevention of secondary growths in man. But the General Superintendent enters his *caveat* against premature application to the treatment of human cancer of any of the results of animal experiments save one. This is that the rationale of the early surgical removal of primary growths is amply justified, and that no substitute for it has yet been discovered.—*The Hospital.*

## DISEASES OF ANIMALS ACTS 1894 TO 1903. SUMMARY OF RETURNS.

| Period. | Anthrax. | | Foot-and-Mouth Disease. | | Glanders (including Farcy) | | Rabies. Cases Confirmed. | | Sheep Scab. | Swine Fever. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Out-breaks | Animals. | Out-breaks | Animals. | Out-breaks | Animals. | Dogs. | Other | Out-breaks | Out-breaks. | Slaughtered * |
| GT. BRITAIN. Week ended Nov. 14 | 25 | 28 | | | 19 | 60 | | | 23 | 53 | 350 |
| Corresponding week in 1907 .. | 15 | 21 | | | 22 | 40 | | | 16 | 28 | 170 |
| Corresponding week in 1906 .. | 22 | 23 | | | 23 | 42 | | | 11 | 37 | 221 |
| Corresponding week in 1905 .. | 14 | 14 | | | 17 | 29 | | | 15 | 9 | 34 |
| Total for 46 weeks, 1908 .. . | 969 | 1262 | 3 | 112 | 720 | 2244 | | | 701 | 1856 | 11723 |
| Corresponding period in 1907 .. | 954 | 1278 | | | 769 | 1750 | | | 481 | 2167 | 10417 |
| Corresponding period in 1906 .. | 812 | 1153 | | | 974 | 1846 | | | 366 | 1064 | 6079 |
| Corresponding period in 1905 .. | 856 | 1167 | | | 1090 | 1867 | | | 759 | 715 | 3203 |

Board of Agriculture and Fisheries, Nov. 17, 1908.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IRELAND. Week ended Nov. 7 | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 1 | 1 |
| Corresponding Week in 1907 .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 1 | 109 |
| Corresponding Week in 1906 .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | .. | 7 |
| Corresponding Week in 1905 .. | .. | .. | .. | .. | 1 | 1 | .. | .. | 6 | .. | 1 |
| Total for 45 weeks, 1908 .. .. | 7 | 10 | .. | .. | .. | .. | .. | .. | 311 | 153 | 3535 |
| Corresponding period in 1907 .. | 3 | 5 | .. | .. | 5 | 9 | .. | .. | 218 | 140 | 2523 |
| Corresponding period in 1906 .. | 3 | 7 | .. | .. | 8 | 16 | .. | .. | 195 | 86 | 955 |
| Corresponding period in 1905 .. | 3 | 5 | .. | .. | 29 | 95 | .. | .. | 257 | 135 | 1404 |

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Nov. 11, 1908

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

## THE RELATIONS OF HUMAN AND BOVINE TUBERCULOSIS.

Prof. ROBERT KOCH*: The question whether or not human and bovine tuberculosis are identical is indeed of high theoretical interest. But the practical importance of the question which concerns the prevention of tuberculosis is of far greater importance. For this reason I will confine myself solely to a consideration of the practical side of the subject. To Theobald Smith of Harvard belongs the credit to have been the first to call attention to certain differences between the tubercle bacilli found in man and in cattle. It was his work which induced me to take up this same study. In co-operation with Schütz I have undertaken a series of experiments for which we selected cattle, these animals being specially suited for such work. The results of these experiments have led me to conclusions which I have first communicated to the British Congress on Tuberculosis in 1901. They are in substance as follows: 1. The bacilli of bovine tuberculosis are different from those of human tuberculosis. 2. Human beings may be infected by bovine tubercle bacilli, but serious disease from this cause occurs very rarely. .3 Preventive measures against tuberculosis should therefore be directed primarily against the propagation of human tubercle bacilli. I did not expect that my personal views on the relation of human and bovine tuberculosis would be accepted as final, but I have asked that the experiments of Schütz and myself be repeated. This has been done since by a host of investigators. Many sources of error must be considered in research on tuberculosis, and only work in which these errors have been definitely excluded can be accepted as conclusive. My personal estimate of the value of the work of other authors depends on how far these errors have been eliminated. For this reason I will now summarise briefly the requisites for conclusive work on the differentiation between human and bovine tuberculosis. The animals used for experimentation must be entirely free from spontaneous tuberculosis. Since the earliest stages of tubercular infection cannot be recognised with certainty, the source of error arising therefrom is only to be overcome by experimenting on long series of animals. This is especially true of investigations on cattle, as in them tuberculin proves the presence of tuberculosis not immediately after infection, but only after the lapse of a certain time. Experiments conducted on too small a number of animals carry no weight whatever. Single exceptions in extensive series of experiments depend as a rule on experimental error. They should be valued accordingly, or the whole series repeated. During the entire period of investigation the animals—that is, cattle, rabbits, and guinea-pigs—must be protected rigidly against tubercular infection. This applies especially to bovine tuberculosis, as the animals are particularly susceptible to this form of the disease and every experimental error vitiates the results in favour of bovine tuberculosis. Special care must be observed in the separation of animals which have been inoculated with bovine tuberculosis obtained from men under the belief that one is dealing with the human form of the disease. Such animals must never be allowed to come in contact with those inoculated with true human tuberculosis. Inoculation of animals should be made subcutaneously with weighed quantities of a *culture* of the tubercle bacillus. Experience has shown that the best results for infection are obtained with doses of 10 milligrammes. Tissue substance must not be used directly, as it contains the tubercle bacilli in irregular distribution. The results obtained thereby are consequently not comparable. It is not practicable to use the tubercle bacilli in too large doses or to make intravenous or intra-abdominal injections, as by such applications non-virulent or even dead tubercle bacilli may produce lesions resembling tuberculosis and thus simulate positive results. In the preparation of the cultures it is necessary that even while obtaining the crude material all precautions must be followed which serve to prevent a contaminating infection either during the inoculation or in the making of the cultures. If it is impossible to make the culture of the bacilli immediately from tuberculous organs—and this is usually the case—the material must first be inoculated into guinea-pigs. This is permissible since it has been proved that a single passage through the body of the guinea-pig does not markedly alter the characteristics of the tubercle bacillus. For infection experiments the culture obtained from the organs of the inoculated guinea-pigs must not be too old and should be used, if possible, in the first or second generation. For standardisation of virulence rabbits may be used, as a rule, in place of cattle. In all doubtful cases, however, the test must be made on a corresponding number of cattle. In determination of the virulence of the culture of tubercle bacilli it is imperative to distinguish between progressive and regressive processes. For this reason experiments must be continued over a long enough time to enable one to make the differentiation with reasonable certainty If the animals are killed too early it is usually impossible to make certain whether the tubercular processes found are of a progressive nature or not. It is well to appreciate that mixed infection by human and bovine tuberculosis may occur. In such cases if proper precaution is not taken in animal experiments bovine tuberculosis will always gain supremacy and lead to error. With regard to experiments in feeding with phthisical sputum, the following points must be observed. If under all conditions the so-called sputum contained only tubercle bacilli of the patient in question, the conduct of these experiments would be relatively simple. But everyone who had examined sputum under the microscope knows that it is mixed nearly always with particles of food. These, of course, may contain milk and butter which themselves may harbour tubercle bacilli derived from cattle. I consider the experimental error caused thereby of such significance that only those experiments on the occurrence of the bacillus of bovine tuberculosis in sputum can be regarded as conclusive from which this error has been absolutely excluded. In order not to be misunderstood on this point, which is to me of paramount importance, may I be allowed to give the following illustration. The British Commission, which is engaged in the investigation of the relation between human and bovine tuberculosis, has conducted experiments on the feeding of phthisical sputum to cattle. Three calves were fed over a period of 120 days, during which time each received a total of 30 litres of sputum. A fourth calf received 21 litres in 91 days. After slaughter there were found in these animals isolated calcified nodules, but no traces of the progressive lesions so characteristic of bovine tuberculosis. On the other hand, a cow was fed with sputum for 209 days. When the animal was killed at the end of this time a progressive tubercular process was found in the mesenteric and portal glands. Here there appeared to be a positive result of the feeding experiment. However, in simultaneous experiments, in one of which a cow was fed with the same sputum for 300 days and in the other two pigs, negative results were obtained. Adding to these the four negative experiments on calves, and considering other similar experiments previously performed—for example, those by myself and by Moeller in Belzig—I cannot but believe that the above result is merely an exceptional case in a large series. The British Com-

* At International Congress on Tuberculosis, at Washington, D.C., U.S.A., Sept. 21 to Oct. 12, 1908.

mission counts this among its positive results. In my own opinion this is not justified. It seems to me highly probable that in this case an experimental error has slipped in, and that the cow was infected by tubercle bacilli contained in milk or butter which had been mixed accidentally with sputum. If such feeding experiments are to be conclusive it is absolutely essential that sputum collected from various patients must not be used, as has been done probably in all former experiments. The sputum of only one definite consumptive should be fed to one definite animal. Obviously care should be taken that the patient in question receives during the experiment neither milk nor butter. Furthermore, in order to exclude all error and to prove that one is dealing with the continuous production of tubercle bacilli by the patient and not with an accidental contamination of his sputum, the experiment must be so arranged that it can be repeated from time to time with the sputum of the same patient. The experiments carried on at the Kaiserliches Gesundheitsamt, in Berlin, are the only ones which fulfil in every way the foregoing experimental requirements. Those of the British Commission fail in several respects, and all other work which has come to my notice answers these requirements so poorly that I can grant them no weight, at least as regards the occurrence of bovine tuberculosis in man. Many of my opponents have made strenuous efforts to prove that the tubercle bacilli in men and those in cattle cannot be of different species, and they imagine that they can thus refute my contentions. This, however, is a perfectly useless endeavour; I have never held that we are dealing with two distinct species, but have only stated that they differ from each other in certain characteristics—characteristics which are of the greatest importance in combating tuberculosis. Whether these differences justify us in speaking of special varieties or even species is, from my point of view quite irrelevant. I am concerned, as I have previously stated, only with the practical significance of the differences between human and bovine tuberculosis. A very convenient expedient in this dilemma has been suggested by Kossel. He does not use the terms "species" or "variety," but speaks of different "types." As this appears quite harmless I shall adopt it myself and use the terms "human type" and "bovine type." Others of my opponents have attempted to refute me by showing that the bacillus of the human type may be transformed into the tubercle bacillus of the bovine type and *vice versa* by passages through animals or by cultivation under artificial conditions. In this connection I can merely repeat that I am interested only in the practical significance of the difference between the two types of tubercle bacilli. For our purposes—that is, for combating tuberculosis—it is absolutely without significance what changes tubercle bacilli will undergo after being passed through a series of animals or during cultivation under some artificial conditions. Those men who consume milk and butter do not hold back and make cultural or animal experiments; they eat them in the fresh, unchanged condition. In my opinion, therefore, we are concerned here with the properties of the fresh and unchanged tubercle bacillus only. I do not deny that cultural transformations may be made with these as well as with other bacteria, but this is a question of purely theoretical value. I shall therefore lay it aside. We may now take up the results of recent investigations. I believe that what has come to my knowledge so far may be summarised briefly as follows: 1. All competent investigators agree that the tubercle bacilli of human origin differ from the tubercle bacilli of cattle, and that consequently we must differentiate between a typus humanus and a typus bovinus. The British Commission also admits the existence of these differences, but as some of its cultures showed definite changes in their characteristics after passage through animals and various cultivations, they have differentiated a third group which they call "unstable." As I have repeatedly emphasised, it is not of the slightest importance to us whether after animal inoculation or breeding experiments the tubercle bacillus is stable or unstable. What concerns us is behaviour in the fresh condition. I am, therefore, unable to accept this third group of the British Commission, and I am satisfied with its admission that the fresh tubercle bacilli of the human type differ distinctly from those of the bovine type. 2. The tubercle bacilli of the human type are characterised by the fact that they grow rapidly and abundantly in a thick layer on a glycerine serum. They are virulent to guinea-pigs, slightly virulent to rabbits, and almost non-virulent to cattle. 3. The tubercle bacilli of the bovine type grow very slowly and in a thin layer on glycerine serum; they are of equally high virulence to guinea-pigs, rabbits, and cattle. 4. To my knowledge the bacilli of the human type have never been demonstrated in cattle. 5. The bacilli of the bovine type, on the other hand, can occur in man. They have been found in the cervical lymph glands, and at the intestinal tract. With few exceptions, however, these bacilli are but slightly virulent for man, and remain localised. The few known cases in which the bovine tuberculosis is said to have produced a general and fatally progressive tuberculosis in man appear to me not to be above suspicion. 6. In closing I have still one point to discuss which seems to me of high importance. Of all human beings who succumb to tuberculosis eleven-twelfths die from consumption or pulmonary tuberculosis, and only one-twelfth from other forms of the disease. One would have expected, therefore, that those investigators who are interested in establishing the relations between human and bovine tuberculosis would have searched for bacilli of the bovine type preferably in cases of pulmonary tuberculosis. This, however, has not been the case. Evidently animated by the desire to bring together as many cases as possible of bovine tuberculosis in man they have investigated particularly cases of gland and intestinal tuberculosis, and have neglected the much more important pulmonary tuberculosis. In spite of the bias under which the researches hitherto have suffered, there yet remains at our disposal a sufficient number of investigations of pulmonary tuberculosis to warrant a provisional expression of opinion. Up to date in no case of pulmonary tuberculosis has the tubercle bacillus of the bovine type been definitely demonstrated. If, on further investigation, it should be established that pulmonary tuberculosis is produced by the tubercle bacillus of the human type exclusively, then the question will be decided in favour of the view which I have upheld, and we must direct our regulations for combating tuberculosis by all means primarily against the tubercle bacilli of the human type.

Prof. Koch concluded his eagerly expected address by stating that on account of the great importance of the question he intends to undertake, as soon as feasible, experiments along this line on a broad scale, at the same time begging other workers to join with him. But he laid stress on the fact that the conditions laid down by him for the carrying out of the investigations must be followed.

Dr. THEOBALD SMITH was the first to rise after the excitement caused by Professor Koch's remarkable words had somewhat subsided. He agreed with Professor Koch that metamorphosis of bovine into human types did not occur under ordinary conditions; but Professor Arloing (Lyons) strongly contested this view, and Dr. Ravenel, too, believed that even in cattle the bacilli in the lung when examined *in situ* resembled the human rather than the bovine type, and that they are coughed up and distributed. He emphasised the experiments which proved that organisms could pass through the intestinal walls without traces, traverse the thoracic duct, and be found in the lungs within four hours.

He did not believe the proportion of bovine cases at all insignificant.

Prof. G. Sims Woodhead (Cambridge) claimed that in no sense could the members of the British Royal Royal Commission be spoken of as Professor Koch's opponents. He believed that they were all working to one end, and he believed that that was the elucidation of a problem which Professor Koch had placed before them and which he was satisfied they were all of them anxious to solve. Speaking personally, and he believed he might speak for his colleagues—though he should commit them on no other points—he had the greatest admiration for the work that Professor Koch had done; indeed, he believed that no man in the world, other than Professor Koch, could have enticed them to take up this question. He should like to say that as regards the conditions laid down by Professor Koch, he thought unnecessarily at that stage, the British Royal Commission had exercised the greatest care to meet them. Their Government had been induced to spend a very large sum, and through the generosity of Lord Blythe they had been able to secure farms at considerable distance from each other which could be completely isolated, and a central laboratory, between the two, to which material to be worked out could be brought, thus doing away with any necessity for any direct communication between the farms. As to animals, they were fortunate in having an island (Jersey) in which tuberculosis had not yet broken out among the cattle, and they had thus been able to obtain a very large supply of healthy bovines on which to carry out their extensive series of experiments. As regards contamination they had obtained the services of assistants in whom they had every confidence, and the results they had obtained had been set forth in their reports and in the greatest detail, so that those who questioned their opinions might see the data on which they were founded, and he asked those who read their reports to go to these appendices for the details of any case in which they thought there might be any doubt; they might then form their own opinions. He had already stated that they had spent much money and had great facilities offered to them in carrying on their work, and he asked them to accept this as evidence that they, at any rate, looked upon this question as an intensely practical one, one that had been set before them by the greatest authority of our time, and they felt that no stone should be left unturned to test the accuracy of statements with which they could not agree from the evidence they had at their disposal. Prof. Koch had taken a single instance and had criticised their findings. They had taken the utmost care to eliminate the possible dangers that Prof. Koch had warned them of. Allowing for a moment that there were flaws in the experiment that Prof. Koch criticised, one of the earliest that they conducted, he would drawn attention to those other cases bearing on the same point in which he believed they would find no loophole for criticism. It could not be a question of merely academic interest, when some 30 per cent. of the cases reported by the two commissions, English and German, were of alimentary origin, for, as calculated by Dr. Cobbett, this meant that about 7 per cent. of the cases of tuberculosis with which they had to deal probably resulted from infection of bovine origin, and 7 per cent. of the cases, allowing a little latitude on either side, could not be looked upon as a negligible quantity. Professor Koch had stated that the alimentary cases were selected, but he should like to point out that they were selected for a short time after they commenced their experiments, for the reason that Prof. Koch had stated that he had been unable to find any large proportion of cases in Germany. He might say, however, that after selecting cases for a certain period they found it unnecessary to continue so doing, as they obtained quite a sufficiently large number without making any special selection. In regard to the question of modification of tubercle bacilli, he was not in position to say more than had appeared in the reports of their Commission, but he should like to point out that they had a warning illustration in what was, and even is, taught as to the infectivity of tuberculosis, even after the discovery of the tubercle bacillus. The interval at which the disease manifested itself was so great after the infection occurred that many people could not bring themselves to believe that cause and effect were in any way associated. This slow growth of the tubercle bacillus had interfered with acceptance of the "infection" view, and it was only when brilliant and patient men like Professor Koch took up the question that this point was settled. Even to-day there were many who did not believe in the infectivity of tuberculosis because of this long period of incubation. Should they not expect to find similar difficulties in tracing the modification either in morphological characters or in virulence of the tubercle bacilli? He believed that the same conditions which regulated the modification of the more rapidly growing bacilli would probably hold good in the more slowly growing tubercle bacillus. It would, of course, take a much longer period for these modifications to come into effect, and it might be that there were conditions in nature which they had not yet been able to copy but which in time might be at their disposal. He thought, however, they had sufficient evidence before them to warrant them in hoping for success even in this direction. Of one thing he was convinced, that in this matter until a clear negative was proven those who took the risk of saying that there was no danger to the community either directly or through an increase of tuberculosis among cattle were incurring a very grave responsibility indeed, and he was so satisfied with the evidence that had already been obtained, not only in England and Germany, but in France, Denmark, and elsewhere, that he should not be willing to countenance the relaxation of a single regulation for the control of bovine tubercle. Indeed, he would go further and say that in the interests of hygiene additional and more stringent regulations ought undoubtedly to be applied.

Professor Arloing then presented the result of his experiments showing a wide range of virulence in bacilli of distinct human type, and argued from this that mere virulence was no criterion. Nor were there produced in the host essential morphological differences; the lesions were alike in the beginning, while later either bacillus might equally produce atypical tubercles. Moreover, the cultural characters insisted upon by Theobald Smith were quite temporary in each bacillus according to its age and environment. Thus, even the most experienced bacteriologists cannot affirm with certainty that a culture presented to them was either bovine or human. He opposed the contention that man was less receptive to bovine organisms by citing a case by Gaultrier in which a nephritic patient sent to a farm on a milk diet contracted glandular tuberculosis of the neck from the contaminated milk, the farmer dying later from pulmonary tuberculosis. (This case is inconclusive, for the milk may have been contaminated by human tuberculosis during its handling by the farmer.) As to the question of intestinal infection, Professor Arloing contended that it was less rare than supposed, and in any case need not show a local reaction, as he himself had proved. He believed it to be impossible to estimate the proportion of human cases; for the proposed tests required experimental confirmation, while the inoculation test of Koch was by no means invariable.

Dr. Fibiger and Dr. Yensen (Copenhagen) agreed as the result of cross-inoculations between men and cattle that the metamorphosis of the two types of infection was possible.

Dr. Dinwiddy (Arkansas) used material from human

tuberculous glands of the neck, also from one case of arthritis of the knee, and from one genito-urinary case, and injected it intraperitoneally in cattle. He found it no more virulent than pulmonary sputum, and therefore concluded that the theory that scrofulous glands and surgical tuberculosis are derived from the bovine type is without support.

Dr. DUVAL (Montreal) studied cultures from four gland cases entirely similar clinically, as each died in a few weeks after onset from miliary tuberculosis. One of these organisms proved to be bovine, one human, and two indeterminate, thus showing the inconclusive nature of clinical evidence.

Dr. DAVOLOS and Dr CARTAGLA (Havana) pointed out the infrequency of tuberculous cattle in Cuba, and their failure to find in human beings bacilli of the bovine type.

Dr. DAWSON (Delaware) maintained that statistics gave an exaggerated idea of the extent of tuberculosis in cattle in the United States; for as a rule it was only suspected herds which were tested. He, too, reiterated that there were numerous cases where infection from cattle was to be presumed.

Dr. NATHAN RAW (Liverpool) drew attention to the probable immunity of man against the bovine type on account of his having fed for centuries on dairy products. He believed in the dualism of tuberculosis, and that *typus humanus* produced pulmonary tuberculosis, ulceration of the intestines and tuberculous laryngitis, while *typus bovinus* caused glandular infection, peritonitis, miliary and meningeal tuberculosis, and the joint and skin infections. He believed that immunity might be artifically increased by employing bovine tuberculin against human infections and *vice versâ*. He also alluded to the ærial convection of infection.—*The Lancet.*

## Alleged Overstocking of Cows at Norwich.

At Norwich City Police Court, on Monday, Nov. 9, before Messrs. H. G. Barclay (Chairman) and C. S. Gilman, Sargent Penson, farmer and dealer, of Lakenheath, Suffolk, was summoned at the instance of Robert Armstrong, Inspector of the R.S.P.C.A., for unlawfully causing to be cruelly ill-treated, abused, and tortured thirteen cows, by allowing them to be overstocked with milk, contrary to statute, on October 3rd. A further summons charged him with cruelty to thirteen calves by withholding from them sufficient nourishing food. Arthur Heyhoe, drover, of 12 Black Swan Yard, Ber Street, Norwich, was summoned for ill-treating the thirteen cows and thirteen calves mentioned above.

Mr. Stuart Bevan (instructed by Mr. S. G. Polhill, London) prosecuted, and Mr. E. Reeve defended.

Mr. Bevan said for the convenience of the hearing he purposed, with the consent of Mr. Reeve, to take the cases together. The cases arose out of what was at one time more prevalently practised than fortunately was the case now, namely, the overstocking of cows. This meant that cows for particular purposes were on certain occasions permitted to secrete so much milk in their udders through neglect of milking that the cows were reduced to great suffering. The object was that the cows with the full udders went into market so as to appear to be abundant milkers, and this naturally attracted the attention of buyers. The particular facts of the case were that on the morning of October 3, Inspector Armstrong and a police-constable were in the neighbourhood of Angel Road, Trowse, when they heard proceeding from a yard near by a continuous and loud bellowing of cows and calves. The inspector and officer entered the yard, and upon opening a shed they found inside fourteen cows and fourteen calves. The calves, with the exception of one, were all tightly muzzled. Thirteen of the cows were moaning and showing signs of very great distress. Their udders were hard and distended; the veins on the udders were swollen, and in some cases discoloured; the backs of the animals were arched, their legs were wide apart, and they were obviously in great pain. The teats, instead of hanging straight, were stretched out, showing the abnormal pressure of milk in the udder. Generally, the condition of the animals left no doubt in the minds of the inspector and the constable that they were suffering great pain. The thirteen calves that were muzzled were butting with their muzzled noses at the udders of their mothers, thus increasing the pain that the cows were suffering by their extended udders. In the case of the fourteenth cow, the calf had slipped the muzzle, and was sucking at the cow, thus causing relief to the beast and appeasing the hunger of the calf. Upon seeing the condition of the others the inspector rode off for a veterinary surgeon, and in an hour's time Mr. Kerr arrived on the scene. This gentleman would describe the obvious and severe pain he found the cows and calves suffering from. The calves were weak and flabby, and the muzzles were so tightly placed upon the calves' noses that they breathed only with the greatest difficulty, and some of them were frothing from the mouth. The inspector saw the defendant Heyhoe, and told him the condition of the beasts, and he said they belonged to Mr. Penson. He said he was instructed by Mr. Penson to muzzle the fourteen calves at about 5 o'clock on the previous afternoon, and he had intended to leave them until market time, between 9 and 10 o'clock next morning. Mr. Penson was then seen, and he observed that it was a necessary thing to do, as the cows had to go into market, and it was necessary to show the shape of the bag to attract buyers. If this was not done Mr. Penson said the cows would not have been sold. Mr. Bevan said the practice of over-stocking was reprehensible, and he should ask the Bench by the penalty they inflicted to show that they did not mean to encourage the practice in that neighbourhood.

Inspector Armstrong was the first witness called, and bore out counsel's opening. He said he was in company with Police-constable Meachen at a quarter past four in the morning on Trowse Bridge, when he heard cows and calves continually bellowing. From the nature of the bellowing he thought the animals must be in great pain. He visited the yard with the officer, and upon opening a shed he found inside fourteen cows and fourteen calves. Thirteen of the cows were overstocked with milk, and bellowing consequent on pain. Witness examined them, when he found their backs arched, legs stretched apart, whilst they shifted about as if irritated. The udders were stretched and extended, and the teats instead of hanging down were sticking out. Witness felt some of them, and found the udders to be hard and hot. Witness was the son of a farmer, and was used to cows and their treatment. The treatment that was applied in that case was cruelty. The calves witness stated were muzzled tightly. They breathed heavily, and were partly suffocated. The calves were butting the cows and causing them further pain of a very acute character. The calves were very weak, and their sides had sunken in from the want of food. They were undoubtedly suffering, and some were in such a state that they were staggering about, and when the muzzles were removed were so weak that they had to be assisted to the mother. Witness fetched Mr. Kerr, the veterinary surgeon, and when he saw the calves he ordered them to be unmuzzled at once. Those that could immediately rushed to their mothers, and suckled as if they had been starving for a very long time. Witness afterwards saw Heyhoe, and later Mr. Penson. Heyhoe said the calves were muzzled about four o'clock the previous afternoon by witness under instructions from Mr. Penson. Mr. Penson told witness that he ordered the calves to be muzzled in order that the cows would have a good meal in the bag, so that the shape of the udder could be

seen. If this was not done he said the cows would not sell.

In cross-examination witness said twelve hours often elapsed before cows were milked. It would not have been cruel to have left cows from five in the afternoon until five in the morning provided the calves were not put with them muzzled. He did not think the cows were properly milked out at five o'clock the previous afternoon. It would not be cruelty for the calves to be kept from the mother twelve hours provided the calves were kept away.

Police-constable Meachen corroborated the last witness.

Mr. William Horace Kerr, veterinary surgeon, of Orford Place, Norwich, spoke to being called to see the cows and calves. Besore he reached the place he heard the bellowing, which suggested that the animals were in pain. Upon entering the shed he saw the cows were packed up, whilst the calves were muzzled except one, which had slipped its muzzle. On examining the cows he found them uneasy and fidgetty, whilst their vessels were distended with milk. On examining the vessels he found they were not only distended, but hot and red, whilst the superficial veins were distended, and the teats distended at the base and red. On touching the teats and udders the cows evinced signs of great pain. A big red cow was a particular sufferer. Her back was arched; she was unfavourable, not chewing her cud; the nose was dry, in fact, she was evidently in pain. The calves were butting at the vessels, and the cows were fidgetting about and snatching up their hind legs, thus showing that they were suffering. The udders, being in the state he saw them the butting necessarily aggravated the pain. The calves struck witness as being weak and empty. It was witness's opinion that the cows could not have been milked clean at 4.30 the previous afternoon. Twelve hours' secretion of milk, he thought, would not have produced the condition of the udders as he saw them. He contended that the calves should have been in separate buildings if they did not desired that they should suckle.

In cross-examination witness said it was not unreasonable to let a cow go fourteen hours without being milked.

Mr. Garrett Taylor, of Trowse House, Norwich, a large dairy farmer and stock-breeder of many years' experience, and a judge at many shows, said he lived within 25 yards of the yard in question. Witness did not hear anything unusual on the morning in question, though he had complained to the Inspector of something he had previously heard. He had heard the evidence that morning as to the condition of the cows and calves, and it was in keeping with the idea that they were suffering pain. He did not think from the conditions described that the cows could have been milked dry at five o'clock the previous evening.

In cross-examination witness said that Mr. Penson was a most respectable dealer, and he did not think he would cause cruelty to an animal knowingly. It was the custom amongst dealers to send cows to market as full as they could possibly get them.

Mr. John Pollock, veterinary surgeon, said that from the evidence of his assistant, Mr. Kerr, the condition of the cows was inconsistent with the idea that the cows had been properly milked between four and five o'clock the previous afternoon.

The Chairman—Though the presence of the calves tended to an increase of milk?

Witness—It could not have been increased to such an extent as described.

James Macqueen, professor, examiner, and Fellow of the Royal College of Veterinary Surgeons, said he had been in practice over thirty years. He had heard the evidence given by Mr. Kerr as to the condition of the cows, and it pointed strongly to over-stocking. The effects of over-stocking upon cows was to cause pain. His opinion was that the cows could not have been milked dry at five o'clock the previous afternoon. Witness said he saw no advantage in milking cows dry and then muzzling the calves. The butting by the calves would aggravate the condition of the udder.

This was the case for the prosecution.

### The Defence.

Mr. Reeve, for the defence, said the case was of very great importance, not only to the public, to Mr. Penson, but to a very large number of dealers and buyers. He had been struck in that case with the great portion of evidence that was simply conjecture. The facts of the case were that Mr. Penson, who had attended and sent cattle to the Norwich Market for over 25 years, and was one of the best known dealers in cows in Norfolk and Suffolk, in the ordinary course sent these cows and calves up for the Norwich Market. He directed that the cows should be milked in the morning before leaving Lakenheath, and this was done. They were then sent by train to Trowse, and were received at that place about half-past two in the afternoon, being accommodated in temporary premises. The calves had direct access to their mothers for three or four hours on Friday afternoon. This was done by Mr. Penson's men from instructions given by him. Afterwards the cows were milked dry, and the calves muzzled. In order that the men might have an inducement to milk the cows dry they were allowed to sell the milk and keep the money. Mr. Reeve submitted that if the Bench accepted evidence to that effect, they must shake in their confidence on the conjectural evidence they had heard.

Mr. Penson on oath, said he had dealt in cows for nearly forty years. The cows referred to were sent from Lakenheath to Trowse on the Friday, separate from the calves. On arrival there, Heyhoe had charge of the animals, and he was instructed to place the calves with their mothers until 5.30, and after to milk the cows dry. He had then to muzzle the calves for the night, and to unmuzzle them about 5.30 the following morning if the udders were fairly full. Witness was at the Norwich Market on October 3rd, when Inspector Armstrong told him that the cows sent the previous day were overstocked. It was a common practice for cows to go fourteen or fifteen hours before being milked. Witness saw the cows at nine the same morning, and they then had no appearance of having been overstocked. In witness's opinion it was a dangerous thing for calves to be allowed too much food.

The defendant Heyhoe also gave evidence on oath. He said that the calves had access to the cows from 2.30 to 5.30 on the afternoon of their arrival at Trowse. After that witness and another man named Fuller milked the cows dry, the milk being witness' and Fuller's property. They got 2½ to 3 gallons of milk after the calves had had their fill. At 5.30 the calves were muzzled and left with their mothers for the night, and he intended going the next morning at five o'clock as was his custom, to allow the calves to obtain access to any of the cows which had the appearance of their udders being full. Witness always acted under Mr. Penson's instructions to cause no cruelty to either cows or calves. He was expected to get the animals to the market by a quarter to nine on Saturday morning. On the morning of October 3rd witness went as usual to the sheds and found Inspector Armstrong there. Neither the calves nor the cows were suffering as was alleged, and the calves were nearly spoiled owing to the veterinary surgeon ordering the muzzles to be taken off. They had too much milk, and witness had great difficulty in getting them to the market.

In cross-examination witness said the cows and calves were all right save one calf, which had slipped its muzzle. This was the only one wrong. He heard the veterinary, the inspector, and the policeman talking, and

mention being made of the beasts being in pain. Witness asked them to show him how or where they were suffering, but they could not. Witness said the cows averaged four quarts of milk after having had a running calf. There would be nothing unusual in this under the circumstances.

William Fuller, drover, of Scoles Green, Norwich, said he was originally summoned by the prosecution to give evidence, but had not been called. He bore out the evidence of the last witness as to the arrival of the cows and calves, to the calves being first placed with the cows, to the cows afterwards being milked dry, and to the calves being then muzzled. Witness was positive the cows were milked quite dry, and that the calves had more than was good for them.

In cross-examination, witness said he remembered seeing Inspector Armstrong, and making a statement to him, which the inspector took down in writing and witnessed signed.

Counsel: Do you say in that statement, "I also assisted Heyhoe to milk out fourteen cows between five and six o'clock in the afternoon. I milked five or six, and Heyhoe seven, or eight. The cows were not milked out dry"?—I beg to differ from that. I didn't say that.

Do you mean that?—Yes.

How did it get into the statement if you did not say it?—I don't know. It was perhaps a slip of the tongue. (Laughter). I didn't say it.

Richard Peachard, for twenty years in the employ of Mr. Penson, said the cows were milked clean out between six and eight o'clock on the Friday morning before being sent to Trowse. The calves at that time had had a full and proper meal, and were quite comfortable, in fact were so much so that some were lying down. Witness went to Norwich on the Saturday morning and saw the cows and calves in the shed. This was about six o'clock. He saw the inspector, the policeman, and the veterinary surgeon there. Witness found no signs of over-stocking upon examining the cows, and they were not, and had not been, in agony.

Mr. Low, veterinary surgeon and veterinary inspector to the Norwich Corporation, said it was his duty to inspect the animals on the Norwich Hill every Saturday. He had during a great many years experience never come across a case of overstocking in Mr. Penson's cattle. About 12 o'clock noon on October 3rd, witness saw the cows in question, and from the appearance of the udders then he should say that there had not been any overstocking. From half-past five on Friday evening until six o'clock on Saturday morning was not a cruel period to leave a cow unmilked or to allow a calf to be without food. A dealer could not sell if the cows' udder were not equal.

Pressed in cross-examination, witness reiterated that when he saw the cows their appearance was decidedly against the idea that the cows had been overstocked. If the cows had been overstocked the calves could not have emptied the udder, whilst there would have been other secretions. If the calves had been allowed to suckle at will, as was alleged by the prosecution, there would have been direct signs of over-stocking.

In re-examination witness said the appearance of the cows were consistent with the description given by Mr. Penson's men, and not by the prosecution.

Mr. Keable, of Earlham, said he had had a large experience of cows, and it was not cruel to keep them unmilked from five o'clock in the afternoon until six o'clock next morning, nor was it so to keep the calves from food.

Mc. Lawrence Peto, J.P., of Blundeston, Lowestoft, owner of a large dairy at Somerleyton, said he saw the cows in question at nine o'clock on the Saturday morning, and they were then quite unfit to show for sale. There was not the slightest sign of the cows having been overstocked. He looked in vain for signs, and one thing he should have expected to see, but did not, if there had been over-stocking, and that was that there was not the slightest inflammation in the udders.

The Bench retired to consider their verdict, and on returning into Court the Chairman said:—"We consider the case was one that required this investigation thoroughly to clear up what at first seemed a case where animals were suffering from inattention. Had these animals been taken to the market in the condition represented by the prosecution, this would in our opinion have been a case for conviction, but the cruelty was avoided by the well intentioned action of the inspector in the early morning. We therefore dismiss all the summonses, and make no order for costs."—*Eastern Daily Press.*

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## Pet Dogs in Ancient Egypt.

New light has been thrown on the conditions of life in ancient Egypt by the discoveries of the Archæological Survey in Nubia, which were referred to by Mr. F. A. Hilton, the President of the Egypt Exploration Fund, in his annual address to the members at Burlington House on Tuesday, Nov. 10. In a length of two miles between the dam and the island of El Hessa, no fewer than eleven cemeteries had been found, dating from prehistoric times downwards. There were cemeteries of slaves and of criminals put to death by hanging. Most of the latter had cords about the neck, after the manner of prisoners led up for execution; others had been decapitated, whilst others again had fractured skulls, spear wounds in the back, and so on. There were also cemeteries of foreign Christian monks. Among these bodies occurred the only instance of gout known in Egypt. Another cemetery furnished an instance of appendicitis.

Scattered amidst the graves of human bodies in one cemetery were found others containing dogs. One animal had ivory braclets around its legs, several had twisted leather collars, and one a long leather lead attached. It was quite interesting to note that even in prehistoric times these ancient Egyptians kept pet dogs, the teeth of which, in many instances, were in very bad condition, being worn and much decayed, thus affording evidence that they had been domesticated and greatly pampered. Operations had been commenced by Prof. Flinders Petrie on the immense site of Memphis, which were expected to yield most important results.

The financial report of the hon. treasurer, Mr. H. A. Grueher, stated that the Committee had been able to wipe out all excess of expenditure of previous years, and the funds would provide the greater part of coming outlay in excavations during next season at Abydos. The total receipts during the year from all sources had been £1345.—*Daily Telegraph.*

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## Medicine in Novels.

A story by a lady novelist referred to by Dr. Vincent Hall in the *Midland Medical Journal*, related the adventures of a young doctor who wins the heart of a beautiful girl while staying at an hotel in Switzerland. Both are enthusiastic mountaineers, but refuse guides. The result is they are caught in a snowstorm while ascending the Matterhorn. They take shelter in a crevice, where they remain for thirty-six hours before they are rescued. Both are unconscious, but the doctor soon revives. In the rescuing party is an older practitioner, who pronounces the girl to be dead. This opinion is refuted by the young doctor with the unanswerable argument that he can still feel pulsation in the girl's femoral artery!—*B. M. J.*

### Milk Supply and Tuberculosis.

The Public Health Committee of the London County Council presented a report at the meeting of the Council on 17th inst. upon the operation of the provisions of Part IV. of the London County Council (General Powers) Act, 1907, which deal with milk supply (tuberculosis). These provisions have been operative since July 1 of the present year. A veterinary inspector has been appointed for the purposes of the Act, for the inspection of cows at farms outside London which supply milk within the county, and an arrangement has been made with the director of the Lister Institute for the examination of samples of milk taken under the Act. The first quarterly return of the action taken is now due, and for convenience, the committee have extended the period under review to October 10. In the period in question they have had under consideration the method by which the Council's power can be most efficiently and economically exercised with a view to the protection of the London population from the risk of consumption of tuberculous milk. As the Council's powers have not been in operation long enough to allow of details being given upon the whole question, the committee think it well to submit the results of the examination of samples of milk and of veterinary inspection of the farms to the date already mentioned. During this period 204 samples of milk have been taken, 60 of which were of milk carried by the London and North-Western Railway Company, 48 by the Great Eastern Railway Company, 60 by the London and South-Western Company, and 36 by the Great Western Railway Company. The examination of 92 of these samples has been completed by the Lister Institute with the result that 22 (that is, a percentage of 23·9) have proved to be tuberculous. The Council's veterinary inspector has visited 20 of the farms from which the samples were taken and inspected the animals at 19 of them, it being proved that the remaining farm had not sent the sample of milk to London. As the result of clinical examinations nine cows were at once reported by the Council's veterinary inspector to have tuberculous udders. Another cow has subsequently been proved to have a tuberculous udder, making 10 cows in all proved to be suffering from this disease. The owner or manager at once undertook not to send to market in London more milk from these cows. The cost incurred by the Council in carrying out the provisions of Part IV. of the Act, for the period covered by this report, is estimated not to exceed £100.

Under Part V. of the same Act, a cow suspected to be suffering from tuberculosis of the udder has been seized in the County of London and slaughtered. A post-mortem examination showed that the udder was affected with tuberculosis, and a sum of £16 10s., being three-quarters of the agreed value of the animal, has accordingly been paid to the owner.—*The Times.*

### Red Murrain in Argentina.

A decree of the Minister of Agriculture was issued on 19th ult. granting to Prof. Lignières the use of a large piece of ground adjoining the Superior Institute of "Agronomia" and "Veterinaria" for the establishing thereon of a station for vaccination against the red murrain in cattle and for the preparation of his curative serum. The following are the conditions of concession:

The buildings constructed are to belong to the Government and the operations of the Institute and it hygienic state are not to be in any way prejudiced. The vaccines which the Professor prepares are to be sold at half their present prices and sufficient quantities of the same and of the serum are to be always ready to meet the demands of "estancieros," and they are to be supplied gratis to the Government for the technical services of its departments. The Professor is also to instruct the pupils of the Institute in everything relating to the application of the vaccines. He is authorised to utilise in the preparation and application of the vaccines and serum the "elements" of the Bacteriological Institute, which are not necessary for its scientific studies. *Buenos Ayres Standard.*

### Personal.

ELDER—EADY.—On the 23rd September, 1908, at St. Mary's, Johannesburg, by the Rev. Benson, William Alexander Elder, M.R.C.V.S., Government Veterinary Surgeon, Swaziland Administration, South Africa, to Valerie Estcourt Eady, only daughter of Mrs. C. L. Ockenden, of Johannesburg.

The Following gentlemen were called to the Bar on Tuesday, 17th inst.—

INNER TEMPLE: . . . . . W. G. Litt.

Mr. Litt served in the Boer War with the first contingent of the Imperial Yeomanry, and saw much active service from February, 1900, to April, 1901. He holds the Queen's medal with four clasps, and is now a Captain in the Territorial Battalion of the King's Shropshire Light Infantry. He graduated Edin: Dec. 1904.

### ARMY VETERINARY SERVICE.

Extract from *London Gazette,*
WAR OFFICE, WHITEHALL, NOV. 13.

ARMY VETERINARY CORPS.

Captain A. Olver, from the Seconded List, to be Deputy Assistant Director-General in succession to Lieut.-Col. E. R. C. Butler, who vacates the appointment of Assistant Director-General on promotion. Dated Nov. 1.

### OBITUARY.

WILLIAM HICK, M.R.C.V.S., Fulford, York.
1851, Edin: Nov., 1879.

Mr. William Hick, veterinary surgeon, of Fulford, died on Sunday, 15th inst., in his 82nd year, from heart disease. He was born at Fulford, and was the only son of the late Mr. Joseph Hick, of that village. He studied for the veterinary profession, graduating at the Royal Veterinary College, Edinburgh, where he passed with distinction, and where he was contemporary with Prof. Dick. He had an extensive practice, and was well known and highly respected by a large circle of friends. The deceased was a Churchman and Conservative, and a sidesman at Fulford Church. He leaves five sons and two daughters. The funeral took place at Fulford Old Churchyard on Wednesday afternoon.

*Apropos* our illustration last week, it is announced that the American Veterinary Medical Association will hold its annual meeting 1909 in Chicago, September 14 to 17.

"No more veterinary surgeons, please, for me," said Mr. Plowden, at Marylebone, at the conclusion of the hearing of a charge of cruelty to a horse, in which conflicting evidence was given by the surgeons called. "In future I shall see how I can get on without them."

## CORRESPONDENCE

### GLANDERS.

Sir,

The following may be of help to Mr. Upton. I think there is little doubt that all nodules that appear in equine lungs are not necessarily glanderous. Angeloff, a veterinary surgeon of Sofia, has devoted much time to research on this subject, and he thus writes: "There are four types of nodules (i) grey transparent, (ii) fibrous, (iii) calcareous, and (iv) glanders nodules.

"1. Transparent nodules are of two kinds—parasitic or lymphatic. In 90 per cent. of these nodules it was possible to find a nematode larva. Lymphatic nodules are rarer and their structure reproduces that of the gland itself; no glanders bacilli.

"2. Fibrous nodules are situated more deeply in the pulmonary tissue and form at the expense of the bronchioles, as witness the strips of muscular fibre and cartilaginous islets one finds in them. They occur from chronic catarrhal or proliferating bronchitis. (These are the nodules that would most probably be suspected to be glanders ones. I think, however, they may be diagnosed on post-mortem. The little shot-like bodies directly under the pleura would not be present and the lung tissue surrounding the nodules would probably be moderately healthy. When scraped with a knife the lung surface would be smooth. I have seen a case of this kind and did not take it to be one of glanders at all, although the horse was in poor condition and died of the complaint.

"(3) Calcareous nodules represent the final stage of parasitic nodules. Section after decalcification reveals a structure of concentric layers. In the centre *débris* of the parasites.

"(4) Glanders nodules offer more variety; the young nodules are nothing but *a pneumonia focus trenched* at its edges; later their centre becomes *grey with a red aureole;* granulous and humid on section. Microscopically one notes that these lesions are due to glanders bacilli that have produced a leucocytary effect with hyperæmia ending in fibrinous miliary pneumonia. No eosinophiles. Glanders nodules never contain eosinophile leucocytes, and do not calcify or become enucleated.—Yours truly,

GLADSTONE MAYALL, M.R.C.V.S.

### "THE AMENDMENT BILL."

Sir,

Did I allow myself the same license of speech as Sir John M'Fadyean, I should characterise his statement that I had "attempted to induce the Governors of the Royal Veterinary College to set aside a regulation made in what they conceived to be the interests of private practitioners in London" as false. It is sufficient, however, to say that it is incorrect.

Nothing can extricate Sir John from the position revealed by his own letter. It is evident that he most strongly urged me to apply for a post of which he knew everything and I knew nothing, and that in offering to place myself at the service of the R.V.C. I acted entirely on his initiative and at his request. He, on the other hand, knew my position, my prospects, and the Governors' conditions, and (though I am sorry to say it) stands self-convicted either of asking me to sacrifice a certain income for what he rightly calls a beggarly salary; or of entertaining such extravagant hopes of his ability to restore the fortunes of the R.V.C. that, even as a junior professor, I should have been no loser. It is clear that these hopes have not been realised.

Long before Professor M'Fadyean came to London I was intimately acquainted with the difficulties of the R.V.C., and, knowing them, was glad to find a way of escaping his somewhat embarassing generosity without telling him the bald truth or appearing ungrateful for what he seems to have regarded as a quite dazzling offer. Sir John M'Fadyean considers this so improbable that the only answer he can find is to doubt its truth. I am content to leave judgment to those who know anything of the intimate history of the R.V.C.

As to the exemption of Licentiates of the Highland and Agricultural Society, including himself and six other Members of Council, Sir John attempts no argument, but falls back upon what now seems his stereotyped reply, a reflection on my veracity. To Sir John it may seem a graceful and concise method of dealing with awkward facts and arguments to simply call them falsehoods, but to those who still retain some sense of the amenities and courtesies of life such methods will hardly carry conviction, while to those who were once proud to be numbered among Sir John's friends they will cause sincere regret.

The public side of the question has entirely disappeared. The need of money by the teaching schools, the issuing of circulars, the competition in all forms with practitioners, the modification of the Bill making the Registration Fund available for the schools, the control of the Fund by the Privy Council, the failure to obtain further powers against quacks—all these points Sir John passes by in silence.

All that remains is purely personal to me. And even that cannot be enforced without recourse to methods and expressions which professional men, at least, should be the last to employ.—Your obedient servant,

JNO. A. W. DOLLAR.

56 New Bond Street, W. Nov. 16.

### VETERINARY EDUCATION.

Sir,

One would imagine from reading your correspondent's criticism of Mr. O. Trevor Williams' communication that the latter dealt with grammar and composition. Instead of this it refers to a very important matter, viz., the practical education of students in obstetrics and cattle practice.

It may to some minds appear clever to diverge from the main point in a discussion by indulging in sarcastic remarks on the grammar and composition of your opponent, but this style of argument does not affect the point at issue. Everyone possessed of ordinary intelligence could understand the commonsense remarks made by Mr. Williams.

It is perfectly true that students may obtain the diploma of the R.C.V.S. and yet be quite ignorant of practical obstetrics. No doubt they are able to quote the various rules laid down in text books, as to the procedure to be adopted in the various presentations. But when they proceed to put these into practice they learn how true is the dictum, that there is an art as well as a science in obstetrics. And it matters not if the young graduate is educated to the highest degree, he must possess this art if he is to succeed in country practice.

It is really high time that the "carping critic" was expunged from professional journals. If your correspondent is desirous of "cutting up" grammar and composition, he should remember that it is only a waste of time so far as the discussion of an important subject it concerned, and also that pedantry is not argument,—Yours, etc.,

"OBSERVER."

COMMUNICATIONS AND PAPERS RECEIVED.—Messrs. J. Robertson, G. Mayall, W. A. Elder, J. A. W. Dollar, T. Parker, J. Clarkson. "Observer," "Minting."

La Macellazione ed il consumo carmeo in Roma negli anni 1906-1907. Relazione Statisco-Sanitaria, Prof. Leonardo Valentini, Veter. Ispett., Capo e Dirett. del Mattatoio. Annual Administration Report of the C.V.D. in India, 1907-1908.

*Eastern Daily Press*, *The Evening Chronicle* (Newcastle).

Communications for the Editors to be addressed 20 Fulham Road, S.W.

TUMOUR ON SHOULDER JOINT, CAUSING LAMENESS AND PECULIAR ATTITUDE OF LIMB, ALSO WASTING OF SCAPULAR MUSCLES.

*To illustrate note by E. Wallis Hoare, F.R.C.V.S.*